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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/731,088 | 12/10/2003 | Akifumi Kamijima | 118045 | 8281 |
| 25944 | 7590 | 11/02/2005 | EXAMINER | |
| OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320 | | | GEORGE, PATRICIA ANN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1765 | |
| DATE MAILED: 11/02/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|--|--|
| Office Action Summary | Application No. 10/731,088 | Applicant(s) KAMIJIMA, AKIFUMI | |
| | Examiner Patricia A. George | Art Unit 1765 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-22 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/10/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 19-22 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5 October 2005.

Applicant's election with traverse of Group I, in the reply filed on 5 October 2005 is acknowledged. The traversal is on the ground(s) that:

"It is also respectfully submitted that the subject matter of all claims 1-22 is sufficiently related that a thorough search for the subject matter of any one Group of claims would encompass a search for the subject matter of the remaining claims."

"Thus, it is respectfully submitted that the search and examination of the entire application could be made without serious burden. See MPEP j803 in which it is stated that "if the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions" (emphasis added). It is respectfully submitted that this policy should apply in the present application in order to avoid unnecessary delay and expense to Applicant and duplicative examination by the Patent Office."

This is not found persuasive because the search and examination of the entire application would present a serious burden as a search for one group of claims would not encompass a search for the remaining claims: The application encompasses groups of different classification, and the process as claimed can be used to make other and materially different product. Furthermore, if the instant inventions found patentable, considering of patentability for more than one invention is serious burden.

The requirement is still deemed proper and is therefore made FINAL.

Response to Amendment

Applicant's amendment, filed on 10 December 2003 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Kozawa et al. of U.S. 20030143490.

In regard to claim 1, Kozawa illustrates, in figure 3, a method for fabricating a mask including: forming a film to be patterned (24), forming, on said film, a laminated resist pattern (25/26) with a T-shaped cross section (II), and composed of a bottom resist (25) pattern (25) and a top resist (26) pattern (27), a surface area of said top resist pattern being larger (IV-27) than a surface area of said bottom resist pattern (IV-26), and increasing said surface area of said top resist pattern area said film is patterned via said laminated resist pattern (IV-27).

In regard to claim 2, Kozawa teaches the bottom resist pattern (fig.3, 25) is made of polymethylglutarimide (PMGI) (p. 0110).

In regard to claim 3, Kozawa teaches the top resist pattern (fig.3, 26) is made of a resist material [p.0110, I.9-12] and the use of Alkali-soluable resins, such as novolak [p.0030, I.2], which is known to have phenol-based hydroxide.

In regard to claim 4, Kozawa teaches the surface of coating a water-soluble resin, on resist (ab.); also illustrated in figure 1, III; and supported in relationship to embodiment 3, cited above, in paragraph 0111. See MPEP 2112.01 "Products of identical chemical composition can not have mutually exclusive properties."

In regard to claims 5 and 6, Kozawa teaches the amount of crosslinking agent may be suitably selected according to the object [p.0026], which encompasses the quantity of none (as in claim 5) or some (as in claim 6).

In regard to claim 7, Kowaza teaches illustrates resist pattern is not removed through the fabrication process of patterned thin film (see figure 3-IV).

In regard to claim 8, Kowaza teaches the film is patterned via said laminated resist pattern by means of dry etching [0091].

In regard to claim 9, Kowaza illustrates, in figure 3, forming a first thin film to be patterned, forming, on said first thin film (24), a laminated resist pattern (25/26) with a T-shaped cross section (II) and composed of a bottom resist pattern (25) and a top resist pattern (26), a surface area of said top resist (26) pattern (27) being larger than a surface area of said bottom resist (25) pattern, patterning said first thin film via said laminated resist pattern, to form a first patterned thin film (III), increasing said surface area of said top resist (260 pattern (27), and forming a second patterned thin film along a contour of said top resist pattern (27) of said laminated resist pattern (25/26).

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In regard to claim 10, see discussion to claim 2.

In regard to claim 11, see discussion to claim 3.

In regard to claim 12, see discussion to claim 4.

In regard to claim 13, see discussion to claim 5.

In regard to claim 14, see discussion to claim 6. ✓

In regard to claim 15, see discussion to claim 7 for where laminated resist pattern is not removed through the fabrication process of said patterned thin film. Kowaza illustrates first and second patterned thin films in figure 3, parts 24 and 27.

In regard to claim 16, see discussion on claim 8.

In regard to claims 17 and 18, Kowaza illustrates, in figure 3, the second patterned thin film (right and left segments of layer 24) are located away from said first patterned thin film (center segment of layer 24) by a minute gap (part 27, right and left of center segment of layer 24), which are which are located at both sides of said first patterned thin film by minute gaps, as in claims 17 and 18.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. 20020187408; U.S. 6,916,597; U.S. 6,579,657; JP 2001-228616 abstract, Abstract of Study for the design of high resolution novolak-DNQ photoresists: the effects of low-molecular-weight phenolic compounds on resist systems; Miyamoto et al.; July 1995; SPIE Vol. 2438, p. 223-234, Advances in Resist Technology and Processing XII; Robert D. Allen; Ed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patty George whose telephone number is (571) 272-5955. The examiner can normally be reached on weekdays between 7:00am and 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PAG

Patricia A George
Examiner
Art Unit 1765


NADINE G. NORTON
SUPERVISORY PATENT EXAMINER